David Tong, 2006, Quantum Field Theory

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Preface

これは [1] の計算を追ったものである.

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(1.50).

$$\begin{aligned}
\text{LHS} &= (\delta^{\mu}{}_{\sigma} + \omega^{\mu}{}_{\sigma})(\delta^{\nu}{}_{\tau} + \omega^{\nu}{}_{\tau})\eta^{\sigma\tau} \\
&\simeq (\delta^{\mu}{}_{\sigma}\delta^{\nu}{}_{\tau} + \delta^{\nu}{}_{\tau}\omega^{\mu}{}_{\sigma} + \delta^{\mu}{}_{\sigma}\omega^{\nu}{}_{\tau})\eta^{\sigma\tau} \\
&= \eta^{\mu\nu} + \eta^{\sigma\nu}\omega^{\mu}{}_{\sigma} + \eta^{\mu\tau}\omega^{\nu}{}_{\tau} \\
&= \eta^{\mu\nu} + \omega^{\mu\nu} + \omega^{\nu\mu} \\
\text{RHS} &= \eta^{\mu\nu} \\
\therefore\ & \underbrace{\omega^{\mu\nu} + \omega^{\nu\mu} = 0}
\end{aligned}$$

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参考文献

[1] David Tong. 2006. Quamtum Field Theory. http://www.damtp.cam.ac.uk/user/dt281/qft.html